

Remarks

Applicants respectfully request that the Examiner reconsider the present application in light of the above amendments and following remarks. Claim 3 has been amended. No claims have been added or cancelled. Therefore, claims 1-12 are pending in the present application.

The drawings in the present patent application have been amended to make the specification and the drawings consistent with one another. In particular, Figures 3, 5, 6 and 7 have been amended to add reference numerals 79a, 79b, 79c and 79d, respectively, to make reference to the clocking mechanisms in the present invention. See *Specification*, pg. 7, lines 6, 24; pg. 8, lines 6, 15. In addition, Figure 7 has been amended to include reference numerals 81 and 83 to reference to the tang and spring clip. See *Specification*, pg. 8, lines 19, 22. Applicants submit herewith drawings labeled "Annotated Sheets Showing Changes" that show the proposed drawing amendments. Further, Applicants submit herewith Replacement Sheets that are intended to formalize Figures 1-7 and incorporate the above-referenced proposed drawing amendments into the drawings. Applicants respectfully request that the drawing amendments be entered.

Claims 12 has been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,196,175 to Church ("the Church reference"). Applicants respectfully traverse this rejection.

Claim 12 is directed to a valve-deactivating hydraulic lifter for selectively coupling the rotary motion of a cam lobe to the reciprocal motion of a valve pushrod in an internal combustion engine. The lifter includes a lifter body, a pin housing, at

least one locking pin and a clocking mechanism. The lifter body has means for following an eccentric surface of the cam lobe and has a first axial bore. A groove is formed in a wall of the first axial bore, wherein the groove is in communication with an oil gallery in the engine. The pin housing is slidably disposed in the first axial bore and has at least one transverse bore and a second axial bore. The at least one locking pin is slidably disposed in the at least one transverse bore. The at least one locking pin has an outer end for selectively engaging the groove to lock the pin housing to the lifter body. Further, the clocking mechanism limits relative rotation between the pin housing and the lifter body.

The Church reference does not teach or suggest a valve-deactivating hydraulic lifter having at least one locking pin having an outer end for selectively engaging a groove formed in a wall of a first axial bore of a lifter body as recited in claim 12. Instead, the Church reference is directed to a latch member (99) that is adapted to be disposed within a circular opening (97) formed in the outer body member (53). The outer end of the latch member (99) in the Church reference is not adapted to selective engage a groove as required by claim 12. Allowing the locking pin to engage a groove formed in the lifter body allows for rotational freedom between the lifter body and the pin housing where the circular bore in the Church reference does not provide such an advantage. As such, Applicants submit that the Church reference fails to teach all of the limitations in claim 12 and request that the rejection be withdrawn.

Claims 1-3 and 5-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Church reference. Applicants respectfully traverse this rejection.

Claim 1 is directed to a valve-deactivating hydraulic lifter for selectively coupling the rotary motion of a cam lobe to the reciprocal motion of a valve pushrod in an internal combustion engine, wherein oil is retained in the lifter during periods of engine shutdown. The lifter includes a lifter body, a pin housing, a pair of opposed locking pins and a clocking mechanism. The lifter body has means for following an eccentric surface of the cam lobe and a first axial bore. A groove is formed in a wall of the first axial bore, wherein the groove is in communication with an oil gallery in the engine. The pin housing is slidably disposed in the first axial bore and has a transverse bore. The pair of opposed locking pins are slidably disposed in the transverse bore and each have an outer end for selectively engaging the groove to lock the pin housing to the lifter body. Further, the clocking mechanism limits relative rotation between the pin housing and the lifter body.

The Church reference does not teach or suggest a valve-deactivating hydraulic lifter including a pair of opposed locking pins each having an outer end for selectively engaging a groove formed in a wall of a first axial bore of a lifter body as recited in claim 1. As stated above with respect to claim 12, the Church reference merely discloses a latch member (99) that is adapted to be disposed within a circular opening (97) formed in the outer body member (53). The outer end of the latch member (99) in the Church reference is not adapted to selectively engage a groove as required by claim 1.

Further, the Church reference does not teach or suggest a valve-deactivating hydraulic lifter including a pair of opposed locking pins as required by claim 1. In rejecting this portion of claim 1, the Examiner stated that mere duplication of elements in a device involves only routine skill in the art. See *Office Action*, pg. 4. However, the use of two locking pins provides an additional benefit in a hydraulic lifter that is not produced in a lifter that uses a single locking pin, as in the Church reference. For instance, in using a pair of locking pins, the force applied through the lifter to open the valve is centralized along the centerline of the lifter thereby improving the smoothness of operation of the locking feature. See *Specification*, pg. 2, lines 26-29. Therefore, it would not have been obvious to one skilled in the art to duplicate the locking pin in the Church reference into a pair of locking pins.

For at least these reasons, Applicants request that the rejection of claim 1 be withdrawn. As claims 2, 3, 5 and 6 depend either directly or indirectly from claim 1, these claims are also not taught or suggested by the Church reference for at least the same reasons set forth with respect to claim 1.

Dependent claims 2, 3, 5 and 6 recite additional features not disclosed in the Church reference. For instance, claim 3 includes, among other features, a longitudinal channel formed in the other of the pin housing and the lifter body. In contrast, the Church reference includes an elongated opening (105) that extends all the way through the outer body member (53). Thus, the opening (105) in the Church reference is not a channel as required by claim 3.

Furthermore, claim 5 states that the clocking mechanism includes a flat formed in an outer surface of the pin housing, a port formed through a wall of the lifter body, and a locking element disposed in the port and extending into contact with the flat. Applicants submit that the Church reference does not teach or suggest a flat formed in the outer surface of a pin housing. In rejecting claim 5, the Examiner does not point out or represent that the Church reference includes the flat recited in claim 5. For these additional reasons, Applicants request that the rejection of claims 3 and 5 be withdrawn.

Claim 7 is directed to an internal combustion engine comprising a valve-deactivating hydraulic lifter installed in the engine at an angle from vertical for selectively coupling the rotary motion of a cam lobe to the reciprocal motion of a valve pushrod, wherein oil is retained in the lifter during periods of engine shutdown. The lifter includes a lifter body, a pin housing, a pair of opposed locking pins, and a clocking mechanism. The lifter body has means for following an eccentric surface of the cam lobe and has a first axial bore. A groove is formed in a wall of the first axial bore and is in communication with an oil gallery in the engine. The pin housing is slidably disposed in the first axial bore and has a transverse bore. The pair of opposed locking pins are slidably disposed in the transverse bore and each have an outer end for selectively engaging the groove to lock the pin housing to the lifter body. The clocking mechanism limits relative rotation between the pin housing and the lifter body.

The Church reference does not teach or suggest a valve-deactivating hydraulic lifter including a pair of opposed locking pins each having an outer end for

selectively engaging a groove formed in a wall of a first axial bore of a lifter body as recited in claim 7. As stated above with respect to claim 12, the Church reference merely discloses a latch member (99) that is adapted to be disposed within a circular opening (97) formed in the outer body member (53). The outer end of the latch member (99) in the Church reference is not adapted to selectively engage a groove as required by claim 7.

As stated above with respect to claim 1, the Church reference does not teach or suggest a valve-deactivating hydraulic lifter including a pair of opposed locking pins as required by claim 7. Since the use of two locking pins provides an additional benefit in a hydraulic lifter that is not produced in a lifter that uses a single locking pin, it would not have been obvious to one skilled in the art to duplicate the locking pin in the Church reference into a pair of locking pins.

For at least these reasons, Applicants request that the rejection of claim 7 be withdrawn. As claims 8 and 9 depend from claim 7, these claims are also not taught or suggested by the Church reference for at least the same reasons set forth with respect to claim 7. Applicants request that the rejection of claims 8 and 9 be withdrawn.

Claims 1-3 and 5-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Church reference in view of admitted prior art. Applicants respectfully traverse this rejection.

In rejecting claims 1 and 7, the Examiner stated that the Church reference teaches a locking pin that selectively engages a groove formed in a wall of a first

axial bore of a lifter body. *See Office Action*, pg. 6. However, as stated above with respect to claim 12, the Church reference does not teach this particular feature.

In addition, the Examiner stated that the Church reference fails to teach or suggest more than one locking pin. *See Office Action*, pgs. 5-6. Therefore, the Examiner used the admitted prior art in the present patent application to teach the use of a pair of locking pins. *See Office Action*, pg. 6. If the additional locking pin is added to the Church reference as suggested by the Examiner, then the assembly disclosed in the Church reference will not operate as intended. Specifically, the additional locking pin added to the Church reference would be slidably disposed in the location currently occupied by the alignment member (101). Therefore, the alignment pin (101) would have to be removed thereby eliminating a feature included in the Church reference. *See In re Ratti*, 270 F.2d 810 (C.C.P.A. 1959) (stating that an obviousness rejection is inappropriate if substantial reconstruction of the prior art reference is necessary).

For at least these reasons, Applicants request that the rejection of claims 1 and 7 be withdrawn. As claims 2, 3, 5, 6, 8 and 9 depend from claims 1 and 7, these claims are also not taught or suggested by the Church references for at least the same reasons set forth with respect to claims 1 and 7. Moreover, claims 3 and 5 include additional features not taught or suggested by the Church reference as set forth above.

Claim 4 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Church reference in view of U.S. Patent No. 5,544,628 to Voigt ("the Voigt

reference"). Claim 4 was also rejected under 35 U.S.C. § 103(a) as being unpatentable over the Church reference in view of admitted prior art in further view of the Voigt reference. Applicants respectfully traverse these rejections.

In rejecting claim 4, the Examiner stated that it would have been obvious to modify the assembly in the Church reference by providing a ball as an equivalent locking mechanism as taught in the Voigt reference. See *Office Action*, pgs. 8-9. Applicants submit that the ball from the Voigt reference is not properly combinable with the assembly in the Church reference. The locking element in the Church reference is used to prevent the rotation of the deactivator (47) within the bore (55). See Col. 5, lines 27-30. In contrast, the ball (29) in the Voigt reference is selectively positioned within a chamber (17) to move the lifter between a maximum cam lift position and a base cam lift position. See Col. 3, lines 33-59. Therefore, there is no motivation to use the ball in the Voigt reference as an anti-rotation device since its primary function is to serve as a cam lift selection mechanism.

Further, claim 4 depends from claim 1, therefore claim 4 includes all of the limitations of claim 1. Therefore, Applicants submit that all the arguments set forth with respect to claim 1 in light of the Church reference and the admitted prior art are also applicable to claim 4.

Claims 10 and 11 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Church reference in view of U.S. patent No. 4,739,675 to Connell ("the Connell reference"). Claims 10 and 11 have also been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Church reference in view of

admitted prior art and in further view of the Connell reference. Applicants respectfully traverse these rejections.

While the Connell reference discloses a cylindrical tappet for use in an internal combustion engine, the Connell reference fails to teach all of the limitations that were lacking in the Church reference as discussed above. Since claims 10 and 11 depend, and thereby include all of the limitations of claim 7, Applicants request that the rejection of claims 10 and 11 be withdrawn for at least the same reasons set forth with respect to claim 7.

Claim 1 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over admitted prior art in view of U.S. Publication No. 2002/0038642 to Haas et al. ("the Haas reference"). Applicants respectfully traverse this rejection.

In rejecting claim 1, the Examiner stated that the prior art fails to disclose a clocking mechanism for limited relative rotation between the pin housing and the lifter body. *See Office Action*, pg. 10. Therefore, the Examiner stated that it would have been obvious to one skilled in the art to modify the device in the prior art with the anti-rotation device as taught in the Haas reference. *See Office Action*, pg. 11.

As best seen in the sole Figure disclosed in the Haas reference, the anti-rotation device disclosed therein includes a housing section (18) that is mounted in the cylinder head (5) and adapted to selectively engage the outer housing (2) with the inner element (7). When the housing section (18) is in the disengaged position, as shown in the Figure, the housing section (18) is positioned within a bore (17) formed in the outer housing (2) and the end of the housing section (18) is positioned within a groove (21) defined in the inner element (7) to prevent rotational movement

between the outer housing (2) and the inner element (7). See *Haas*, ¶ 15. In an engaged position, the housing section (18) is positioned within the bore (17) formed in the outer housing (2) and the end of the housing section (18) is positioned within a bore (16) formed in the inner element (7). Therefore, regardless of whether the housing section (18) is in the engaged or disengaged position, the housing section (18) is positioned within the bore (17) formed in the outer housing (2).

Applicants submit that the anti-rotation device in the *Haas* reference is not properly combinable with the lifter disclosed in the prior art. In order to modify the prior art lifter disclosed in Figure 1 of the present patent application to include the anti-rotation device disclosed in the *Haas* reference, the housing section (18) in the *Haas* reference would first be mounted in the engine (68). The housing section (18) would then extend from the engine (68) and through a bore formed in the lifter body (12) regardless of whether the housing section (18) is in an engaged or disengaged position. Since the housing section (18) would extend from the engine (68) to the lifter body (12) throughout the operation of the lifter, the lifter body (12) would not be permitted to move up and down relative to the engine (68). However, normal operation of the prior art lifter shown in Figure 1 of the present patent application requires that the lifter body (12) be permitted to move up and down relative to the engine (68) as the roller (14) follows a cam lobe profile throughout the operation of the lifter. Since the prior art lifter shown in Figure 1 of the present patent application would be inoperable for its intended purpose if the housing section (18) from the *Haas* reference were used therewith, there is no motivation or suggestion to combine the teachings of the *Haas* reference with the prior art lifter. See *In re*

Gordon, 733 F.2d 900, 902 (Fed. Cir. 1984) (finding no suggestion to modify a prior art device where the modification would render the device inoperable for its intended purpose)

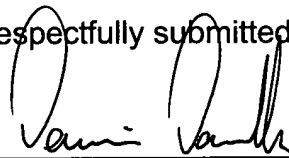
For at least this reason, Applicants request that the rejection of claim 1 be withdrawn.

Conclusion

In light of the foregoing, Applicants submit that claims 1-12 are in condition for allowance and such allowance is respectfully requested. Should the Examiner feel that any unresolved issues remain in this case, the undersigned may be contacted at the telephone number listed below to arrange for an issue resolving conference.

Applicants do not believe that any fee is due at this time, however, the Commissioner is hereby authorized to charge any fees that may have been overlooked that may be due, to Deposit Account No. 10-0223.

Respectfully submitted,



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Gordon, 733 F.2d 900, 902 (Fed. Cir. 1984) (finding no suggestion to modify a prior art device where the modification would render the device inoperable for its intended purpose)

For at least this reason, Applicants request that the rejection of claim 1 be withdrawn.

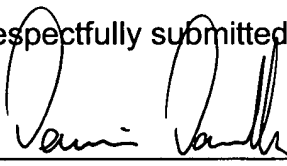
Conclusion

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Amendments to the Drawings

Each of the attached sheets of drawings labeled "Annotated Sheet Showing Changes" shows the proposed changes to Figures 3, 5, 6 and 7. Each of the attached drawings labeled "Replacement Sheet" include the changes to Figures 3, 5, 6 and 7 and represent a formalized version of Figures 1-7.

Attachments: Annotated Sheets Showing Changes
Replacement Sheets

Annotated Sheet Showing Changes

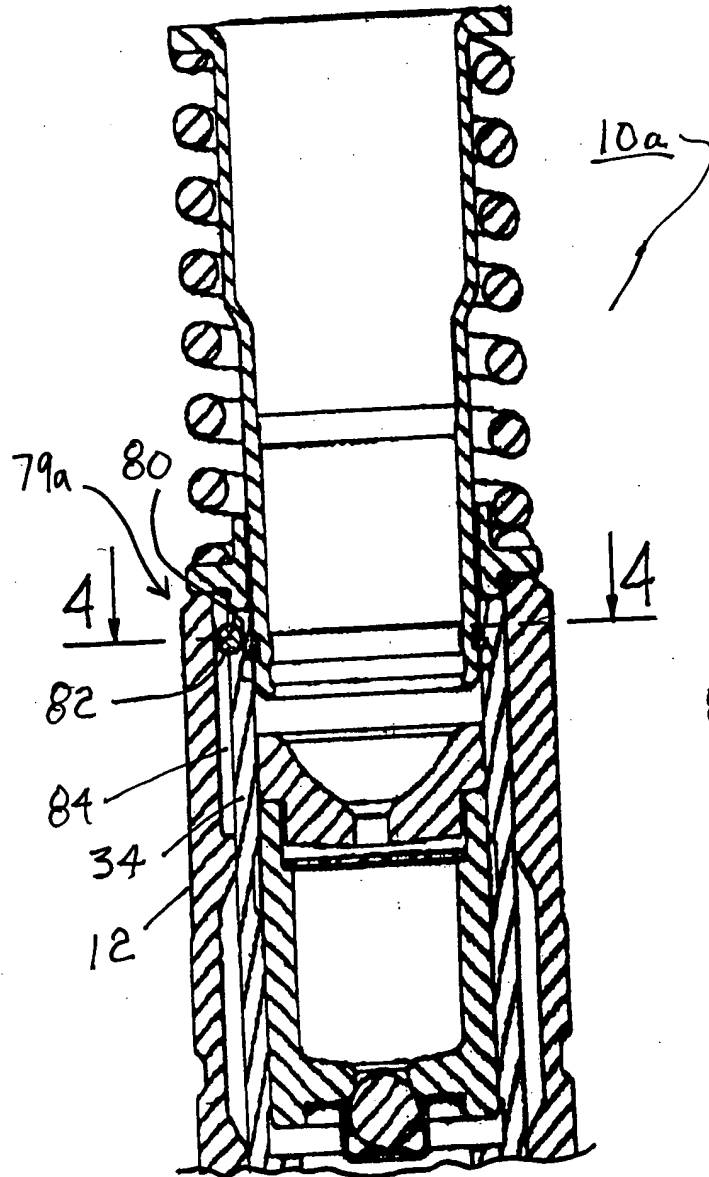


FIG. 3

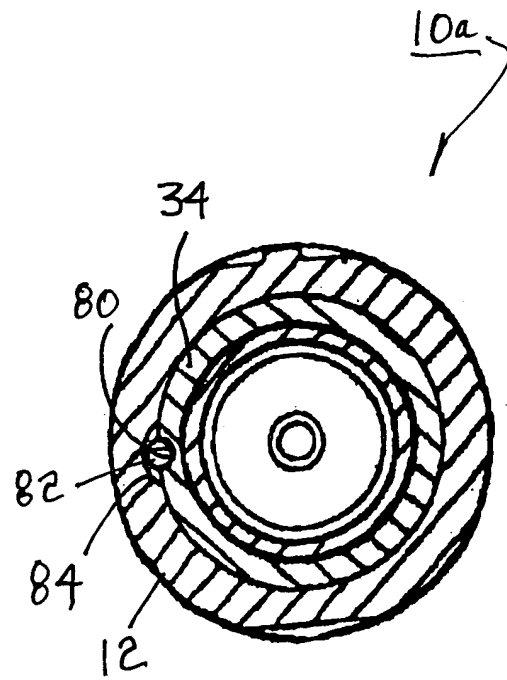


FIG. 4

ANTI-ROTATION DEACTIVATION
VALVE LIFTER

Docket No.: 89190.115003/DP-311086

Sheet 5 of 7

Annotated Sheet Showing Changes

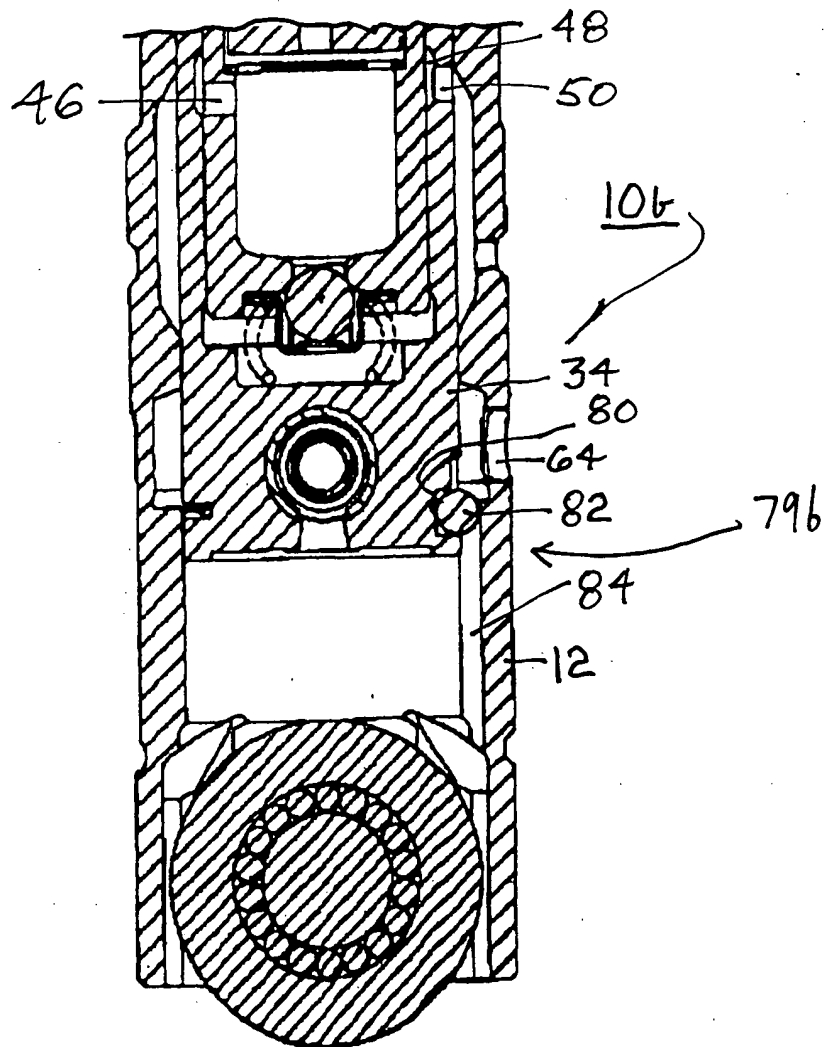


FIG. 5

ANTI-ROTATION DEACTIVATION

VALVE LIFTER

Docket No.: 89190.115003/DP-311086

Sheet 6 of 7

Annotated Sheet Showing Changes

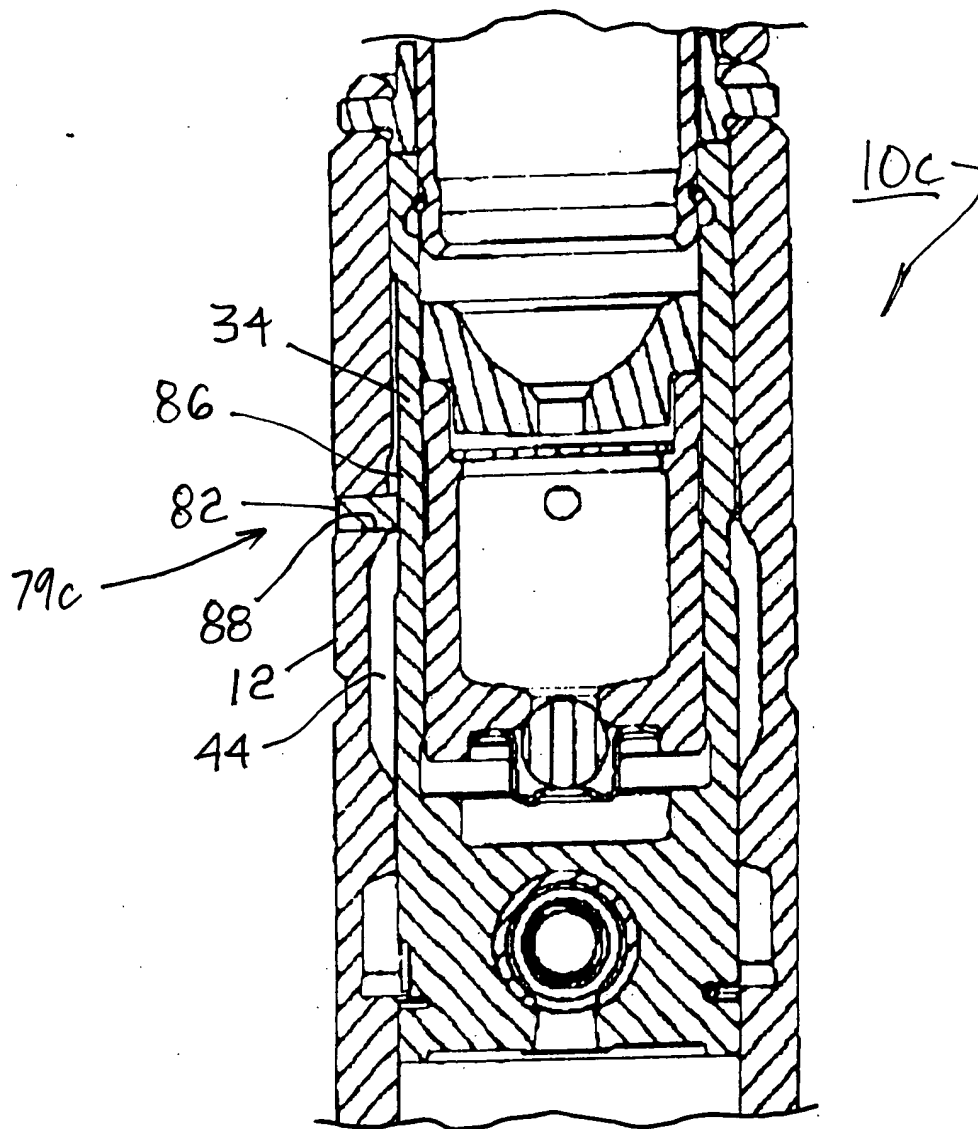


FIG. 6

ANTI-ROTATION DEACTIVATION
VALVE LIFTER

Docket No.: 89190.115003/DP-311086

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Annotated Sheet Showing Changes

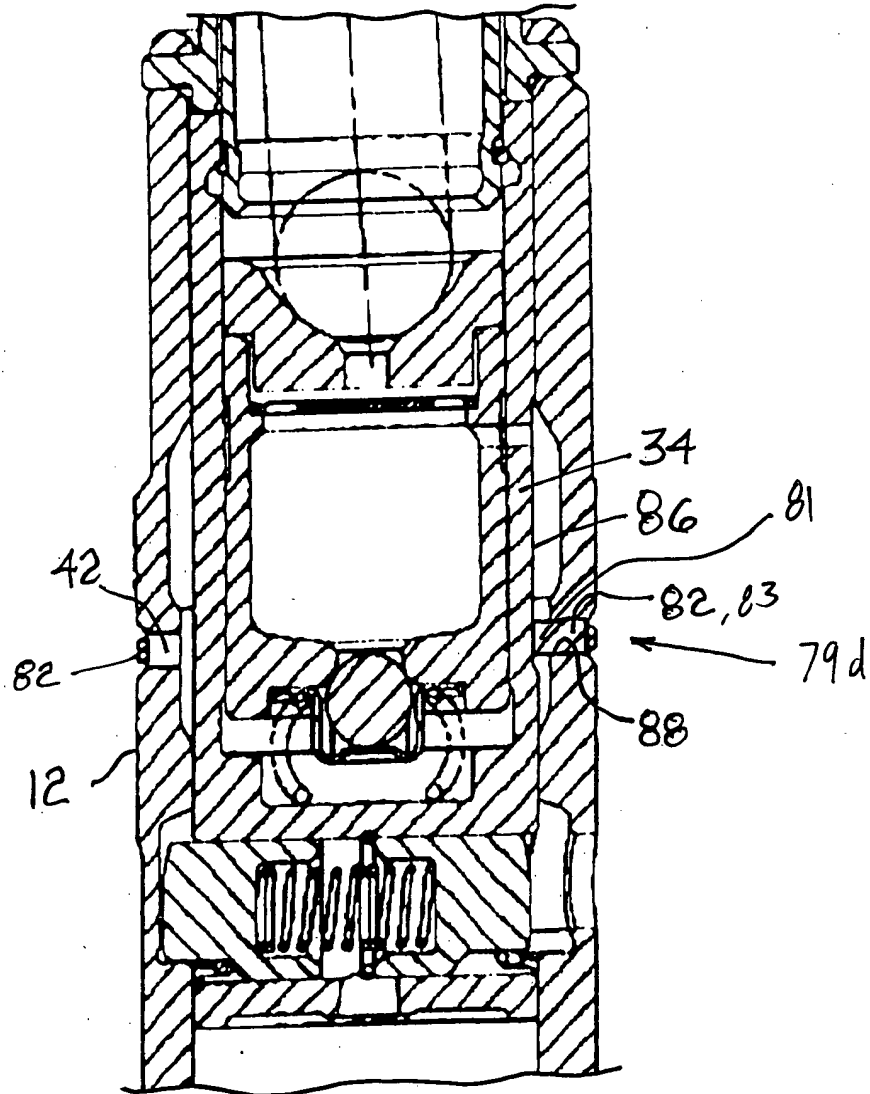


FIG. 7